

U. S. DEPARTMENT OF COMMERCE
DANIEL C. ROPER, Secretary
NATIONAL BUREAU OF STANDARDS
LYMAN J. BRIGGS, Director

DOUGLAS FIR PLYWOOD

(EXPORT GRADES)

COMMERCIAL STANDARD CS45E-36

Effective Date for New Production November 1, 1936



A RECORDED STANDARD OF THE INDUSTRY

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1936

PROMULGATION
of
COMMERCIAL STANDARD CS45E-36
for
DOUGLAS FIR PLYWOOD
(EXPORT GRADES)

On September 9, 1936, at the request of the Douglas Fir Plywood Association and with the approval of the standing committee, a recommended revision of Douglas Fir Plywood, Commercial Standard CS45-33, incorporating changes applicable to export grades, was submitted to the manufacturers and distributors for approval. The industry has since accepted and approved for promulgation by the United States Department of Commerce, through the National Bureau of Standards, the standard as shown herein.

The standard is effective for new production beginning November 1, 1936.

Promulgation recommended.

I. J. Fairchild,
Chief, Division of Trade Standards.

Promulgated.

Lyman J. Briggs,
Director, National Bureau of Standards.

Promulgation approved.

Daniel C. Roper,
Secretary of Commerce.

DOUGLAS FIR PLYWOOD

(EXPORT GRADES)

COMMERCIAL STANDARD CS45E-36

DEFINITION

1. Douglas fir plywood is a built up board of laminated veneers in which the grain of each piece is at right angles to the one adjacent to it. The kiln dried veneer is united under high pressure with a water-resistant glue, making the joints as strong or stronger than the wood itself. The alternating direction of the grain with each contiguous layer of wood equalizes the strains and in this way minimizes shrinkage and warping of the product and prevents splitting.

GENERAL REQUIREMENTS

2. All Douglas fir plywood sold as of commercial standard quality shall meet the following general requirements:

3. *Workmanship*.—It shall be smoothly sanded on two sides unless otherwise specified. It shall be well manufactured and free from blisters, laps, etc., except as permitted in the specific rules for the various grades.

4. *Construction*.—Unless otherwise specified, veneers $\frac{1}{12}$ inch or more shall be used in the construction of panels $\frac{1}{4}$ inch and upward in thickness. The veneer thickness shall be measured before the panel is sanded.

5. *Gluing*.—It shall be tightly glued with water-resistant glue.

DETAIL REQUIREMENTS

6. *The grade descriptions set forth the minimum requirements, and therefore the average quality of the panels in any shipment will exceed the specification given. Douglas fir plywood shall be graded according to both sides of the piece into the following standard grades:*

"AA" GRADE

7. Each face shall be of a single piece of smoothly cut veneer of 100-percent heartwood, free from knots, splits, checks, pitch pockets, and other open defects. No blue stain will be permitted. Shims that occur only at the ends of the panels and a few inconspicuous well-matched small patches not to exceed $\frac{3}{8}$ inch wide by $2\frac{1}{2}$ inches long shall be admitted. This grade is recommended for uses where a light stain or natural finish is desired.

"A" GRADE

8. One face shall be equal to the description for "AA" grade, while the reverse face shall be sound and of one piece. No joints are permitted in either face.

"B" GRADE

9. This grade must present a sound surface on both sides, but may show any amount of discoloration. One face may be made up of two or more pieces well joined and reasonably matched for grain and color at the joints. All open defects must be neatly repaired and both faces must present a surface suitable for painting. Open defects not permitted in faces.

"AA/BB" GRADE

10. One face shall be equal to the description for "AA" grade, while the reverse face shall admit solid or open defects in number and size which will not seriously affect the strength or serviceability of the panel for purposes where but one face is exposed.

"B/BB" GRADE

11. One face to be equal to the description for "B" grade but may be made up of two or more pieces well joined and reasonably matched for grain and color at the joints. The reverse face shall admit solid or open defects in number and size which will not seriously affect the strength or serviceability of the panel for purposes where but one face is exposed.

NO. 1 DOOR PANELS

12. The grade of no. 1 door panels shall be the same as for "AA" grade.

NO. 2 DOOR PANELS

13. Each face shall be of a single piece of veneer that is free of knots and other open defects, but may admit medium stain and discoloration. Patches not to exceed $\frac{5}{8}$ by $2\frac{1}{2}$ inches and shims of any size when reasonably selected for color and grain, are admissible.

CONCRETE FORM PLYWOOD

14. Concrete form plywood shall be built up of three or five thicknesses of veneer, of which the two outside plies are at least $\frac{1}{8}$ inch thick before sanding. An occasional knot hole is permissible in the center core of 5-ply panels only but no knot holes are permitted in the cross banding.

15. Faces must be free from knots or open defects. The glue used shall be especially prepared for this purpose and be very highly water-resistant. When so ordered, concrete form plywood will be treated with a satisfactory form oil or other preparation, prior to shipment. All concrete form plywood shall be branded.

SIZE TOLERANCES

16. A tolerance of $\frac{1}{4}$ (0.0156) inch over or under the specified thickness shall be allowed on sanded panels and a tolerance of $\frac{1}{32}$ (0.0312) inch on unsanded panels.

17. A tolerance of $\frac{1}{32}$ (0.0312) inch over or under the specified length and/or width shall be allowed but all panels shall be square within $\frac{1}{8}$ (0.1250) inch.

INSPECTION

18. All plywood guaranteed to conform to the commercial standard grading rules is sold subject to inspection in the white only, except concrete form material which may have a priming of oil or other preparation before shipment.

CERTIFICATION

Recognizing the necessity of maintaining high standards of quality, the Douglas Fir Plywood Association has established an inspection bureau for the careful grading of all plywood entering the export trade. Each shipment is accompanied by a certificate of inspection, facsimile of which appears below, on which the quantity of each grade is attested to over a sworn statement by a licensed inspector.

<div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">CERTIFICATE OF INSPECTION</div>	
<p>DOUGLAS FIR PLYWOOD ASSOCIATION</p> <p>INSPECTION BUREAU</p> <p><small>TACOMA BUILDING</small></p> <p>TACOMA, WASH. U. S. A.</p>	
<p>WE I inspector</p>	<p>regularly approved</p> <p>do hereby certify that WE have personally verified and inspected the parcel enumerated below.</p> <p>WE have found this parcel to be in good order and condition, up to grade specified and containing the quantity as given in the body of this certificate.</p>
<div style="text-align: right; margin-bottom: 10px;"> <div style="border-bottom: 1px solid black; width: 200px; display: inline-block;"></div> <small>INSPECTOR</small> </div> <p>Subscribed and declared to before me, the undersigned, a Notary Public in and for the State of _____</p> <p style="margin-left: 100px;">_____residing at _____</p> <p style="margin-left: 100px;">by the above named part _____ personally known to me as the</p> <p style="margin-left: 100px;">person _____ signing the above certificate.</p> <p style="margin-left: 100px;">Date _____</p> <div style="text-align: center; margin-top: 20px;"> <div style="border-bottom: 1px solid black; width: 150px; display: inline-block;"></div> <small>NOTARY PUBLIC</small> </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> <small>COUNTERSIGNED</small> _____ </div> <div style="width: 45%;"> <small>INSPECTOR GENERAL</small> _____ </div> </div>	

GLOSSARY OF TERMS

Centers.—See *Cores*.

Checks.—Small splits running parallel to the grain of the wood caused chiefly by strains produced in seasoning.

Cores.—Cores or centers are the innermost layer in plywood construction.

Crossbanding.—Veneer used in the construction of plywood with five or more plies. In 5-ply construction it is placed at right angles between the cores and faces.

Defects, open.—Checks, splits, open joints, cracks, loose knots, and other defects interrupting the smooth continuity of the panel surface.

Heartwood.—Sometimes referred to as "heart"—the darker-colored wood occurring in the inner portion of the tree.

Inspection in the white.—This means inspection before panels are finished, such as with varnish, stain, paint, or enamel.

Knots.—Cross section of a branch or limb whose grain usually runs at right angles to that of the piece in which it is found.

Knot holes.—Voids produced by the dropping of knots from the wood in which they were originally embedded.

Lap.—A condition where the veneers used are so misplaced that one piece overlaps the other rather than making a smooth butt joint.

Patches.—Insertions of sound wood glued and placed into panels from which defective portions have been removed.

Pitch pockets.—A pitch pocket is a well-defined opening between rings of annual growth, usually containing, or which has contained, more or less pitch, either solid or liquid.

Pitch streaks.—A pitch streak is a well-defined accumulation of pitch in a more or less regular streak.

Sapwood.—Sometimes referred to as "sap"—the lighter-colored wood occurring in the outer portion of the tree.

Shim.—A long, narrow patch not more than $\frac{3}{16}$ inch wide.

Sound surface.—A sound surface means that all open defects have been patched.

EFFECTIVE DATE

The standard became effective for new production on November 1, 1936.

STANDING COMMITTEE

The following comprises the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Each association nominated its own representatives. Comment concerning the standard and suggestions for revision, may be addressed to any member of the committee or to the Division of Trade Standards, National Bureau of Standards, which acts as secretary for the committee.

RALPH BRINDLEY (chairman), The Wheeler Osgood Co., Tacoma, Wash.

BRUCE CLARK, Elliott Bay Mill Co., 600 West Spokane Street, Seattle, Wash.

M. SEKSTROM, Olympia Veneer Co., Inc., Olympia, Wash.

PHILIP GARLAND, Oregon-Washington Plywood Co., 1549 Dock Street, Tacoma, Wash.

H. C. RELF, Pacific Forest Industries, Tacoma Building, Tacoma, Wash.

HISTORY OF PROJECT

Pursuant to a request from the manufacturers of Douglas fir plywood a general conference of manufacturers, distributors and users of the product was held at the Winthrop Hotel, Tacoma, Wash., on August 17, 1932, to consider the adoption of standard grading rules for the guidance of the industry.

Manufacturers representing approximately 80 percent of the production of Douglas fir plywood were in attendance as well as others interested in the distribution and use of the product.

The proposed standard that had been tentatively drafted by a committee of manufacturers was thoroughly discussed and several constructive changes were made.

The general opinion of the conference was decidedly favorable to the adoption of definite grades for the manufacture, sale, and use of Douglas fir plywood and it was unanimously voted:

To approve for recommendation to the entire industry the Commercial Standard for Douglas Fir Plywood with the adjustments as made by the conference.

FIRST REVISION

The standing committee as a result of an industry conference held in Tacoma, Wash., on August 3, 1936, recommended the modifications embraced in the present edition and further urged their publication as a separate document from that covering domestic grades.

The recommended revision was circulated on September 9, 1936 for written acceptance with the result that the revised standard was accepted and authorized by the industry for publication as Douglas Fir Plywood (Export Grades), Commercial Standard CS45E-36.

ACCEPTANCE OF COMMERCIAL STANDARD

This sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date_____

Division of Trade Standards,
National Bureau of Standards,
Washington, D. C.

Gentlemen:

Having considered the statements on the reverse side of this sheet, we accept the Commercial Standard CS45E-36 as our standard of practice in the

Production ¹	Distribution ¹	Use ¹
of Douglas fir plywood (export grades).		

We will assist in securing its general recognition and use, and will cooperate with the standing committee to effect revisions of the standard when necessary.

Signature_____

(Kindly typewrite or print the following lines)

Title_____

Company_____

Street address_____

City and State_____

¹ Please designate which group you represent by drawing lines through the other two. In the case of related interests, trade papers, colleges, etc., desiring to record their general approval, the words "in principle" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards are commodity specifications voluntarily established by mutual consent of the industry. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the industry as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish for specific commodities, nationally recognized grades or consumer criteria and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: First, to act as an unbiased coordinator to bring all branches of the industry together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by companies representing a satisfactory majority of production, the success of the project is announced. If, however, in the opinion of the standing committee of the industry or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

ACCEPTORS

The organizations listed below have accepted these grade descriptions as their standard of practice in the production and distribution of Douglas fir plywood for the export trade. Appearance on this list does not in itself constitute a guarantee that all of their products meet the Commercial Standard and therefore further evidence of quality certification should be obtained with each shipment.

ASSOCIATIONS

Douglas Fir Plywood Association, Tacoma, Wash. (In principle.)
Pacific Forest Industries, Tacoma, Wash.

FIRMS

Aberdeen Plywood Co., Aberdeen, Wash.
Aircraft Plywood Corporation, Seattle, Wash.
Buffelen Lumber and Manufacturing Co., Tacoma, Wash.
Capitol Plywood Co., Olympia, Wash.
Elliott Bay Mill Co., Seattle, Wash.
Harbor Plywood Corporation, Hoquiam, Wash.
M & M Plywood Corporation, Division of M & M Wood Working Co., Longview, Wash.
M & M Wood Working Co., Portland, Ore.

FIRMS—continued

McCleary Timber Co., Henry, McCleary, Wash.
Northwest Door Co., Tacoma, Wash.
Olympia Veneer Co., Inc., Olympia, Wash.
Oregon-Washington Plywood Co., Tacoma, Wash.
Plylock Corporation, Division of M & M Wood Working Co., Portland, Ore.
Robinson Manufacturing Co., Everett, Wash.
Smith Wood-Products, Inc., Portland, Ore.
Vancouver Plywood & Veneer Co., Vancouver, Wash.
Washington Veneer Co., Olympia, Wash.
West Coast Plywood Co., Aberdeen, Wash.
Wheeler Osgood Sales Corporation, Tacoma, Wash.

COMMERCIAL STANDARDS

OS no.	Item	OS no.	Item
0-30.	The commercial standards service and its value to business.	34-31.	Bag, case, and strap leather.
1-32.	Clinical thermometers (second edition).	35-31.	Plywood.
2-30.	Mopsticks.	36-33.	Fourdrinier wire cloth (second edition).
3-28.	Stoddard solvent.	37-31.	Steel bone plates and screws.
4-29.	Staple porcelain (all-clay) plumbing fixtures.	38-32.	Hospital rubber sheeting.
5-29.	Steel pipe nipples.	39-32.	Wool and part wool blankets.
6-31.	Wrought-iron pipe nipples (second edition).	40-32.	Surgeons' rubber gloves.
7-29.	Standard weight malleable iron or steel screwed unions.	41-32.	Surgeons' latex gloves.
8-33.	Gage blanks (second edition).	42-35.	Fiber insulating board (second edition).
9-33.	Builders' template hardware (second edition).	43-32.	Grading of sulphonated oils.
10-29.	Brass pipe nipples.	44-32.	Apple wraps.
11-29.	Regain of mercerized cotton yarns.	45-36.	Douglas fir plywood (domestic grades) (second edition).
12-35.	Fuel oils (third edition).	45E-36.	Douglas fir plywood (export grades).
13-30.	Dress patterns.	46-36.	Hosiery lengths and sizes (second edition).
14-31.	Boys' blouses, button-on waists, shirts, and junior shirts.	47-34.	Marking of gold-filled and rolled-gold-plate articles other than watch cases.
15-29.	Men's pajamas.	48-34.	Domestic burners for Pennsylvania anthracite (underfeed type).
16-29.	Wall paper.	49-34.	Chip board, laminated chip board, and miscellaneous boards for bookbinding purposes.
17-32.	Diamond core drill fittings (second edition).	50-34.	Binders board for bookbinding and other purposes.
18-29.	Hickory golf shafts.	51-35.	Marking articles made of silver in combination with gold.
19-32.	Foundry patterns of wood (second edition).	52-35.	Mohair pile fabrics (100-percent mohair plain velvet, 100-percent mohair plain frieze, and 50-percent mohair plain frieze).
20-36.	Staple vitreous china plumbing fixtures (second edition).	53-35.	Colors and finishes for cast stone.
21-36.	Interchangeable ground-glass joints, stopcocks, and stoppers (third edition).	54-35.	Mattresses for hospitals.
22-30.	Builders' hardware (nontemplate).	55-35.	Mattresses for institutions.
23-30.	Feldspar.	56-36.	Oak flooring.
24-30.	Standard screw threads.	57-36.	Book cloths, buckrams, and impregnated fabrics for bookbinding purposes except library bindings.
25-30.	Special screw threads.	58-36.	Woven elastic fabrics for use in overalls (overall elastic webbing).
26-30.	Aromatic-red-cedar closet lining.	59-36.	Woven dress fabrics—testing and reporting.
27-35.	Mirrors (second edition).	60-36.	Hardwood dimension lumber.
28-32.	Cotton fabric tents, tarpaulins, and covers.		
29-31.	Staple seats for water-closet bowls.		
30-31.	Colors for sanitary ware.		
31-35.	Wood shingles (third edition).		
32-31.	Cotton cloth for rubber and pyroxylin coating.		
33-32.	Knit underwear (exclusive of rayon).		

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of every day practice in their industry, may secure copies of the above standards, while the supply lasts, by addressing the Division of Trade Standards, National Bureau of Standards, Washington, D. C.

